

Breeding by Freckled Duck *Stictonetta naevosa*, and a review of recent records, in the Barkly wetlands, Northern Territory

Roger Jaensch

Wetlands International - Oceania
c/- Queensland Herbarium, Mt Coot-tha Road, Toowong, QLD, 4066

Abstract

During 1993-2002, Freckled Ducks *Stictonetta naevosa* were recorded throughout the Barkly wetlands of the Northern Territory, most often in the Wet season, in groups of up to 80 birds. Breeding possibly occurred in Lignum *Muehlenbeckia florulenta* swamp in April 1993 and was confirmed in June 2001 when three broods were observed in Cooba *Acacia stenophylla* swamp at Lake Sylvester. This was the first documentation of breeding by Freckled Duck in the Northern Territory. The species is listed as Vulnerable under Northern Territory legislation but there are no known threats to the continued occurrence and breeding of Freckled Duck in the Barkly wetlands.

Introduction

The Freckled Duck occurs in central-eastern, south-eastern and south-western Australia and irregularly in other parts of the continent (Marchant & Higgins 1990). It breeds in some inland and coastal parts of its core range and, according to published accounts (Marchant & Higgins 1990), the most northerly breeding localities are in the Channel Country bioregion (Environment Australia 2002a) in south-western Queensland. It is among the less abundant Anatidae in Australia, with an estimated maximum population size of 19 000 birds (Martindale 1983). This population size varies markedly and probably is much lower in most years (Marchant & Higgins 1990). The Freckled Duck is not, however, listed as a threatened species under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (Environment Australia 2002b) or by Garnett and Crowley (2000).

In the Northern Territory, the Freckled Duck is regarded as a rare or uncommon visitor to southern interior areas and a vagrant in the north (Storr 1977, Blakers *et al.* 1984, Marchant & Higgins 1990). In the Mitchell Grass Downs bioregion (Environment Australia 2002a), Freckled Duck was considered by Parker (1969) to be a regular winter visitor to waterholes in the Brunette Downs area, present in small numbers (up to 160 but usually far less) in most years. It is listed as Vulnerable under the *Territory*

Parks and Wildlife Conservation Act 2001.

Wetlands on blacksoil plains in the Northern Territory part of the Mitchell Grass Downs, from Lake Woods in the west to Lake Sylvester in the east ('the Barkly wetlands'), were substantially inundated during much of 1991-5 and 2000-2. The largest floods, early in 1993 and 2001, created more than 500 000 ha of inundated open lake, wooded swamp, shrub swamp and open shore habitats. A two-person team conducted extensive ground, boat and/or aerial surveys of waterbirds in selected wetlands in both periods: 10 surveys from March 1993 to mid 1995 (Jaensch 1994, Jaensch & Bellchambers 1997) and single surveys in June 2001 and April 2002 (R. Jaensch unpublished data). This work yielded new information on Freckled Duck in the Barkly wetlands, which is summarised here.

Distribution, numbers, seasonality and habitats in the Barkly wetlands

Freckled Duck were recorded in each of the five years of survey during 1993-2002 and, at some time, from each of the major Barkly wetlands (Table 1). Individuals were also sometimes recorded, generally late in the Dry season, at small dams and overflow ponds associated with bores along the Barkly Stock Route. The largest total recorded was 119 birds spread over 3 wetlands on 28-29 March 1994 (Table 1).

Table 1. Highest numbers of Freckled Duck counted at the major Barkly wetlands, 1993-2002, with summary of habitats used.

<i>Wetland</i>	<i>Habitats</i>	<i>Date</i>	<i>Count</i>
Tarrabool Lake	Sand & gravel beach/chenier beside open lake	29 Mar 1994	82
Corella Lake	Delta channels of Corella Creek and associated Lignum swamp	18 Aug 1993	56
Lake Sylvester	Delta channels of Brunette Creek; Cooba/Coolibah wooded swamp	6 Jun 2001	48
Lagoon at Brunette Downs homestead	Waterhole with extensive Lignum	1 Feb 1995	40
Lake Woods	Lignum swamp; open lake; Coolibah wooded swamp	28 Mar 1994	35
Lake de Burgh	Coolibah wooded swamp beside open lake	17 Dec 1993	4
Eva Downs Swamp (end of Cherub Ck)	Cooba wooded swamp	29 Mar 1994	2

Forty dated records of Freckled Duck from the Mitchell Grass Downs and immediately adjacent arid areas, drawn from the fauna database of the Parks and Wildlife Commission of the Northern Territory (A. Fisher pers. comm., August 2002) and recent reports (R. Jaensch unpublished data), were analysed for seasonality. Eighty per cent of the records were from 1993-2002, when at least one survey was conducted in each calendar month except July and October. Of the 40 records, 8 occurred during summer, 21 during autumn, 5 during winter, and 6 during spring. There were 26 records in the Wet season (December to April) and 14 in the Dry.

Freckled Duck were recorded in most of the wetland habitats of the Barkly wetlands (Table 1) except Bluebush *Chenopodium auricomum* swamp. The largest concentrations, usually of a single, loosely associated flock, tended to be at roost sites on beach/chenier ridges or on banks beside the deepest open water in the wetland.

Breeding in the Barkly wetlands

In 1993, Freckled Duck were observed by the survey team at several of the Barkly wetlands in circumstances suggestive of breeding. Two pairs were seen at Lake Woods on 16 April and a male in full breeding colours - including a bright red bill-base - and a closely associated female were seen there in Lignum *Muehlenbeckia florulenta* swamp (17° 44.4' S, 133° 31.3' E) on 18 May. Weight of testes and brightness of bill are correlated (Marchant & Higgins 1990, p. 1171), and the intensity of red bill colour is probably greatest at the breeding site during the early stages of breeding (R. Jaensch pers. obs.). On 21 May, six Freckled Duck, including two males with bright red bills, were flushed from inundated Lignum swamp (18° 48.8' S, 135° 42.6' E) at Lake Sylvester. On each occasion, suitable nest sites in Lignum shrubs to 1.5 m in height, inundated to depths of up to 1 m, were investigated but no active nest or brood of young was detected.

Confirmation of breeding was obtained on 6 June 2001. During a helicopter flight at 50 m height, the author saw three broods - each comprising at least three, non-flying dependent juveniles- of Freckled Duck in the far south-eastern part of Lake Sylvester (18° 52.9' S, 135° 50.6' E). The habitat was Cooba *Acacia stenophylla* tall shrubland with some Coolibah *Eucalyptus barkhyensis* open woodland to about 10 m height and some Lignum, inundated to a depth of about 1 m from an earlier peak of perhaps 1.5 m. The juveniles were judged to be about 60-70% of full-grown size, had partly formed wings and were uniformly pale sandy-grey in colour. They were escorted by at least one adult Freckled Duck per brood. Other waterbirds in the immediate vicinity included Hardhead *Aythya australis*, which has browner juveniles; and Eurasian Coot *Fulica atra*, which has black juveniles. It was not possible to search for nests on this occasion but the Freckled Ducks may have nested in forking trunks of Cooba or Coolibah trees/shrubs near water-level, or in Lignum shrubs. These potential nest sites were common

in the immediate vicinity and elsewhere in the south-east of the Lake. Data on incubation period (28 days) and development of young (full-grown at 56 days: Marchant & Higgins 1990, p. 1170) suggest that in this case clutches may have been completed at the end of March or in the first week of April 2001. Examination of satellite images (Geoscience Australia 2002) shows that such a date may have been close to the date of highest water-level at Lake Sylvester in the 2000-1 Wet season.

Conclusions

Surveys during 1993-2002 have shown that the Freckled Duck occurs throughout the Barkly wetland system, in relatively low numbers (compared with population size), in all seasons but (*contra* Parker 1969) especially in the Wet, and in most wetland habitats.

Breeding by Freckled Duck has been confirmed in the Northern Territory. The broods recorded at Lake Sylvester in June 2001 apparently are also the first confirmation of breeding in all of northern, tropical Australia (Marchant & Higgins 1990). It is likely that at least small numbers of Freckled Duck bred in the Barkly wetlands in 1993 and that breeding at this scale may occur whenever inundation of the wetlands is extensive. The assumed month of laying (probably March) for the 2001 breeding record is not recorded for Freckled Duck in southern Australia (Marchant & Higgins 1993) but reflects typical temporal patterns of wetland availability in northern Australia.

No immediate threat to presumed nest sites or nursery areas of Freckled Duck in the Barkly wetlands is known to the author. No disturbance of active nest sites by cattle would normally occur due to depth of inundation and boggy substrate. Long term effects, if any, on key habitats arising from fire (especially in Cooba stands), from grazing during severe droughts and from continued invasion of the exotic thorny shrub *Parkinsonia aculeata*, have not been determined. Managers of grazing leases are currently addressing some of these issues in conjunction with government agencies.

Further studies on waterbirds in the Barkly wetlands should include more effort to locate nests or broods of Freckled Duck. Identification of preferred diet and habitat for feeding would also enhance conservation management of Freckled Duck in the Barkly wetlands.

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